What is claimed is:

1. A system for enabling only the transmission of the input signals having the lowest instantaneous noise transient level in the transmitted portion of electrical signals having identical program component of substantially equal signal strength with differing noise transients and transmitted synchronously and simultaneously over separate channels, the existence of such noise transients being reflected by differences between the instantaneous magnitudes of said input signals and an average signal reflecting the average of said input signals, said system comprising:

comparing means connectable to said channels for continuously comparing the total instantaneous signal plus noise magnitude of said input signals to said average signal and actuable in response to the existence of a noise transient in any of said input signals for enabling the transmission of the input signals having lower instantaneous noise transient level with respect to said average signal.

2. The invention according to claim 1 wherein said comparing means comprises:

control means connectable to said channels for generating switching signals indicative of the channels carrying the input signals having lower instantaneous transient noise level with respect to said average signal and

enabling means connected to said switching signals to enable the channels carrying the signals having lower transient noise levels than said average signal to transmit the input signals.

3. The invention according to claim 2 and further including:

low frequency mixing means connectable between said channels for mixing equally into all of said channels all signal components having frequencies below a predetermined frequency level.

4. The invention according to claim 1 and further including means for attenuating the components of said input signals having frequencies below a predetermined low frequency and

wherein said comparing means compares only input signals above said predetermined low frequency.

5. The invention according to claim 3 and further including:

low frequency mixing means preceding said comparing means and connected between said channels;

said comparing means being connected between said channels;

enabling means for enabling at least one of said channels in response to the comparing means, to carry the signals having lower transient noise level than said average signal and to transmit the signals carried thereby;

wherein signal from the low frequency mixer is selected to compensate for the low frequency attenuation and is combined with the signal following the switching means preserving the frequency characteristic of the input signal without noise transients thereby.

6. The invention according to claim 1 and further including:

averaging means connectable to said channels for receiving and combining the respective input signals; and

wherein said comparing means comprises means connectable to said channels and to said averaging means, and actuable for enabling at least one of said channels or said averaging means having lower transient noise level in comparison to said average signal to transmit the signals carried thereby, and when only one of said channels is enabled for disabling the other of said channels from transmitting the signals carried thereby.

7. The invention according to claim 1 and further including:

averaging means connectable to said channels for receiving and combining the respective input signals;

and wherein said comparing means comprises means connectable to said channels and to said averaging means, and actuable for enabling one or both of said channels or said averaging means having higher signal level in comparison to the average signal to transmit the signal carried thereby, and when only one of said channels is enabled for disabling the other of said channels from transmitting the signals carried thereby.

8. The invention according to claim 1 and further including:

averaging means connectable to said channels for receiving the respective input signals and for generating an average signal;

and wherein said comparing means is further connected to said averaging means, said comparing means enabling the channels carrying the signals having lower transient noise level in comparison with the average signal, carrying the signals having the lowest transient noise level to transmit the signals carried thereby.

9. The invention according to claim 1 wherein a pair of said channels each include amplifying means for amplifying the respective input signals of the channels, and wherein said system further includes balance control means for balancing the respective program signal voltages on the pair of channels, said balance control means comprising:

gain adjusting means connected to at least one of said amplifiers to adjust the respective gains of said at least one amplifier in response to the reception of said imbalance signals.

10. The invention according to claim 1 wherein the system includes first and second channels for transmitting said electrical input signals, and said control means comprises:

first rectifying means connectable to said first channel for generating first rectified signals of one polarity corresponding to signals transmitted by said first channel; and

second rectifying means connectable to said second channel for generating second rectified signals having the same polarity as said first rectified signals, and corresponding to signals transmitted by said second channel;

third rectifying means connected to said average signal for generating third rectified signals opposite in polarity to said first and second rectifed signals, and corresponding to the combined signals generated by said averaging means;

first polarity determining means for combining said first and third rectified signals and for determining the polarity of the combined first and third rectified signals, and for generating a first switching signal indicative of the one of said first channel and of said average signal having the lowest transient noise level; and

second polarity determining means for combining and said second and third rectified signals and for determining the polarity of the combined second and third signals, and for generating a second switching signal indicative of the one of said second channel and of said average signal having the lowest transient noise level.

11. The invention according to claim 10 wherein said first and second polarity determining means each further include threshold means for establishing a threshold value and for preventing the generation of said first or said second switching signals when the absolute magnitude of the differences between either or both of said respective combined rectified signals are less than said threshold value.

12. The invention according to claim 11 wherein the simultaneous generation of first and second switching signals is permitted to occur only if the levels of the signals of the first and second channels are alike within a predetermined ratio.

13. The invention according to claim 1 wherein said comparing means comprises:

first control means connectable to said channels for generating switching signals indicative of signals having the lowest transient noise level, and

first enabling means connected to said first control means, and actuable in response to said switching signals to enable the channel or average of channels carrying the signal having the lowest transient noise level to transmit said enabled signal, and

wherein said system further comprises:

blanking means connectable to said enabled signal for blanking an interval of said enabled signal;

second enabling means electrically connected to said blanking means and actuable for selectively enabling said blanking means to perform the blanking function; and

second control means electrically connected to said second enabling for detecting noise transients in the input signal transmitted by said enabled signal, and for generating actuating signals to actuate said second enabling means in response to the detection of a noise transient.

14. The invention according to claim 1 wherein said comparing means comprises:

first control means connectable to said channels for generating switching signals indicative of the presence of a noise transient having an amplitude above a predetermined value;

first enabling means connected to said first control means, and actuable in response to said switching signal to enable the channel or average of the channels carrying the signal having the lowest transient noise level to transmit said enabled signal; and

wherein said system further comprises:

blanking means connected to said channels for blanking an interval of the enabled signal;

second enabling means electrically connected to said blanking means and actuable for selectivity enabling said blanking means to perform the blanking function;

second control means electrically connectable to said channels for detecting noise transients in said enabled signal and for generating blanking control signals in response to the detection of a noise transient;

third control means electrically connected to said second enabling means and actuable for actuating said second enabling means.

15. A system for enabling the transmission of an input signal having the lowest instantaneous noise transient level in the transmitted portion of electrical signals having identical program component of substantially equal signal strength with differing noise transients and transmitted synchronously and simultaneously over separate channels, the existence of such noise transients being reflected by differences between the instantaneous magnitudes of identical polarity of said input signals, said system comprising:

first and second channels for transmitting said electrical input signals,

first rectifying means connectable to said first channel for generating first rectified signals of one polarity corresponding to signals transmitted by said first channel;

second rectifying means connectable to said second channel for generating second rectified signals opposite in polarity to said first rectified signals, and corresponding to signals transmitted by said second channel;

first polarity determining means connected to said first and second rectifying means, for combining said first and second rectified signals and for determining the polarity of the combined rectified signals, and for generating switching signals according to said polarity;

enabling means for enabling either of said channels in response to said switching signal, to carry only the input signal having the lowest magnitude and to transmit only the signals carried thereby;

second polarity determining means connected to said first and second channels for determining if the input signals are of the opposite polarity, to disable the switching signals there upon.

16. A system for reducing the noise transients in an input signal transmitted over a channel, said system comprising:

first and second filter means connected to said channel for transmitting different bands of frequencies therethrough;

first and second blanking means connected to said channel for respectively blanking first and second bands of frequencies in the input signal transmitted by said channel;

first and second enabling means electrically connected respectively to said first and second blanking means and actuable for selectivity enabling said first and second blanking means to perform the blanking functions; and

first and second control means electrically connectable to said filters for detecting noise transients in the input signal transmitted by said channel and for generating blanking control signals in response to the detection of a noise transient.

17. The invention according to claim 16 wherein the blanking levels of said first and second blanking means are in predetermined relationship with said levels in first and second bands of frequencies during a predetermined time interval prior to blankings.

18. The invention according to claim 16 wherein:

said first and second filter means transmit relatively lower and higher bands of frequencies, respectively;

said first and second blanking means are connected to said first and second filter means, respectively, for blanking the lower frequency and higher frequency bands in independent time portions of the input signal transmitted by said signal;

and further comprising:

disabling means electrically connected to and preventing operation of said first enabling means when said second enabling means has not been enabled.

19. The invention according to claim 18 wherein said second enabling means provides a predetermined time interval during which said first blanking means can be enabled by said first enabling means.

20. The invention according to claim 16 wherein said second control means comprises:

low pass filter means for transmitting said input signal exclusive of the high frequency transient noise components of said input;

peak voltage generating means electrically connected to low pass filter means for transmitting a first signal reflective of the instantaneous voltage from the low pass filter;

comparing means electrically connected to said first signal and to the input of the second control means constituting a second signal; for generating a noise indicator signal when the first signal exceeds in amplitude the second signal;

gain adjustable means for adjusting the gain of the peak voltage means with respect to the input of said second control means by a predetermined amount; and

means for connecting said second control means to said second enabling means, for actuating said second enabling means to produce said second blanking signal.

21. The invention as in Claim 20 where the input of second control means is connected to the output of the second filter.

22. The invention according to claim 20 wherein said gain adjustable means further includes a predetermined combinable dc bias voltage such that the gain adjustable signal is at least as great as that of the dc bias voltage.

23. The invention according to claim 20 wherein said low pass filter means further comprises:

disabling means for preventing the transmission of signal therethrough; and

means for connecting said disabling means to said first enabling means, the actuation of said first enabling means furthermore actuating said disabling means.

24. The invention according to claim 23 wherein said disabling means is actuated for a predetermined time interval initiated by a triggering signal from the first enabling means.

25. The invention according to claims 23 ~~and 24~~ wherein said peak voltage generation means further includes signal retention means such that the voltage stored thereby is not significantly attenuated during the time interval that said disabling means is enabled.

26. A system for suppressing noise in an input signal, comprising:

first means for producing a first signal proportional to the peak amplitude of the rate of change with respect to time of the input signal;

second means for producing a second signal proportional to the instantaneous amplitude of the input signal;

selection means for selecting an operating frequency band for use with the second means, the second means producing the second signal proportional to the instantaneous amplitude of the portion of the input signal falling within the selected frequency band;

control and ratio means for dividing the first or second signals by the other to obtain an indication of the noise in the input signal relative to the amplitude and frequency characteristics of the input signal and for generating a control signal according to said indication; and

filtering means having a cut-off frequency selected in response to said control signal, said filtering means filtering from the input signal components of the input signal according to the selected cut-off frequency to suppress noise in the input signal.

27. The system according to claim 26, wherein the first means comprises differentiating means shunted by capacitive and resistive means for producing a signal proportional to the peak amplitude of the time rate of change of the input signal.

28. The system according to claim 26, wherein the selection means for selecting an operating frequency band comprises a band pass filter.

29. The system according to claim 26 and further including means establishing a predetermined time delay interval, and means for making said control signal unresponsive to noise transients occurring in said channel having durations less than said interval.

30. The system according to claim 29 wherein the duration of the time delay interval is at least 1 millisecond.

31. The system according to claim 26 and further including means for combining predetermined dc voltage with said control signal such that the control signal attains a voltage magnitude at least that of the dc voltage.

32. The system according to claim 26 and further including metering means electrically connected to said control signal, said control signal also connected to said filtering means for suppressing noise from said input signal, wherein said metering means is responsive to said cut-off frequency.

33. The system according to claim 26, wherein said filtering means comprises at least one cascaded single pole filter.